WHAT IS CLAIMED:

1. A method of manufacturing a tactile sensor including an electrically conductive elastomer, said method comprising the steps of:

providing a base having at least one electrode thereon;

applying a low temperature solder to a top of said electrode;

placing an electrically conductive elastomer on said base;

heating said electrically conductive elastomer on said base to a temperature below a melting point of said electrically conductive elastomer to cause said low temperature solder to wick into said electrically conductive elastomer.

2. The method of claim 1, further comprising the step of:

applying insulating heat resistant adhesive on at least a portion of said base where said at least one electrode is not present.

3. The method of claim 1 wherein said electrically conductive elastomer comprises a foam.

4. The method of claim 3 wherein said foam comprises a polyethylene closed cell foam.

5. The method of claim 3 wherein said foam comprises a polyethylene open cell foam.

6. The method of claim 4 wherein said melting point comprises about 100 degrees C.

7. The method of claim 1 wherein said low temperature solder melts at a temperature between about 70 and about 150 degrees C.

8. The method of claim 1 wherein said low temperature solder melts at between about 90 and about 130 degrees C.

9. The method of claim 1 wherein said at least one electrode comprises a metal trace on said base which comprises a printed circuit board.

10. The method of claim 1 wherein said temperature is sufficiently high to cause conduction and/or convection to heat said low temperature solder to about 5 to 20 degrees C higher than a melting point of said low temperature solder.

11. The method of claim 1 wherein said base comprises a rigid material.

12. The method of claim 1 wherein said base comprises a curved material.

13. The method of claim 1 wherein said base comprises a flat material.

14. A method of manufacturing a tactile sensor including an electrically conductive elastomer, said method comprising the steps of:

providing a base having a plurality of electrodes thereon, each of said plurality of electrodes having at least one spike extending out from said base at a defined angle θ, wherein said at least one spike of one of said plurality of electrodes protrudes from said base in an outward direction away from a direction of said at least one spike of said other of said plurality of electrodes;

stretching said electrically conductive elastomer outward a certain distance;

placing said electrically conductive elastomer onto said base such that said electrically conductive elastomer becomes gripped by said spikes of said plurality of electrodes when said electrically conductive elastomer is no longer stretched;

locally heating said electrically conductive elastomer to slightly higher than a melting point of said electrically conductive elastomer to melt locally said electrically conductive elastomer around said spikes of said plurality of electrodes.

15. The method of claim 14 wherein said angle θ is between about 10 and 80 degrees.

16. The method of claim 14 wherein said angle θ is between about 45 and 75 degrees.

17. The method of claim 14 wherein said certain distance comprises at least two times a length of said spike multiplied by $\cos\theta$.

18. The method of claim 14 wherein said certain distance does not exceed an elastic range of said electrically conductive elastomer.

19. The method of claim 14 wherein at least one of said plurality of electrodes is elliptically shaped.

20. The method of claim 14 wherein at least one of said plurality of electrodes is polygonally shaped.

21. The method of claim 14 wherein at least one of said plurality of electrodes is rectangularly shaped.

22. The method of claim 14 wherein said spikes are tooth-like.

23. The method of claim 14 wherein said electrically conductive elastomer comprises a foam.

24. The method of claim 3 wherein said foam comprises a polyethylene foam and said melting point comprises about 100°C.

25. A method of manufacturing a tactile sensor including an electrically conductive elastomer, said method comprising the steps of:

providing an electrically conductive elastomer;

providing a layer comprising a conductive material to be at least one electrode on a top of said electrically conductive elastomer;

perforating through said layer to create a plurality of burrs protruding from said layer of said conductive material into said electrically conductive elastomer; and

melting said electrically conductive elastomer locally around said plurality of burrs to connect said at least one electrode to said electrically conductive elastomer.

26. The method of claim 25 wherein said electrically conductive elastomer comprises a foam.

27. The method of claim 26 wherein said foam comprises a polyethylene foam.

28. The method of claim 25 wherein said layer comprises a strip of zinc-coated copper.

29. The method of claim 25 wherein said layer comprises a strip of conductive material rolled from a spool.

30. The method of claim 25 wherein said perforating step is performed by a punch.

31. The method of claim 25 wherein said perforating step is performed by a wheel having at least one punch element thereon.

32. The method of claim 31 wherein said at least one punch element comprises a tooth-like element.

33. The method of claim 31 wherein said at least one punch element comprises a cylindrical element.

34. The method of claim 31 wherein said at least one punch element comprises a block type element.

35. The method of claim 31 wherein said wheel has various sizes of punch elements thereon.

36. The method of claim 31 wherein said wheel has various types of punch elements thereon.

37. The method of claim 30 wherein said perforating step is also performed with a concentrating plate.

38. The method of claim 31 wherein said perforating step also perforates entirely through said electrically conductive elastomer.

39. The method of claim 25 wherein said perforating step and said melting step are performed by a heated roller having at least one punch element thereon.